



Published in final edited form as:

J Low Genit Tract Dis. 2018 October ; 22(4): 267–268. doi:10.1097/LGT.0000000000000427.

Preventing Global Human Papillomavirus-Associated Lower Genital Disease

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Since the mid-20th century, many countries around the globe have achieved great reductions in the burden of cervical cancer and other lower genital tract neoplasms, initially by using cervical cytology screening with follow-up of abnormal tests, and later by (1) recognizing the human papillomavirus (HPV) as the primary cause of cervical neoplasia, (2) employing laboratory tests developed to detect HPV (3) identifying specific viral types considered high risk, and (4) developing preventive vaccines that currently reduce the risk of infection with viruses associated with several lower genital tract cancer precursors. In countries that implemented cytology-based programs, a 50%–90% reduction of cervical cancer incidence and mortality rates has been observed.¹ Unfortunately, the application of this great health benefit has not been universal. As our knowledge expands about the burden of HPV-associated diseases among individuals in adequately resourced nations for whom limited screening and primary prevention exist, we are far behind in applying our knowledge and expertise to those in underserved nations with limited or no wellness resources.

In 1957, the United States Commission on Chronic Illness defined health screening as “the presumptive identification of unrecognized disease or defect by the application of tests, examinations or other procedures that can be applied rapidly.”² Thus, health screening is the use of methods to detect unrecognized health risks or diseases to permit timely intervention. Screening tests are used to distinguish apparently unaffected people from those who may have a disease or may develop it. A screening test is not intended to be diagnostic. Screening procedures are generally easier to perform and cheaper than diagnostic procedures. Their results require confirmation through definitive diagnostic tests or sometimes direct treatment based on a positive test. Even if the screening test is harmless, it can cause anxiety and the subsequent investigations and treatment may cause harm. Ensuring the safety of screening is also important because large numbers of individuals will be screened, creating a potential for greater numbers to be harmed by the process of screening.³

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

The authors have declared they have no conflicts of interest.

It is a coincidence that in April 2018, an article by Dobrow et al.,⁴ appeared in the *Canadian Medical Association Journal* updating the principles of screening forged by Wilson and Jungner in 1968,³ which have endured the test of time as a basis for making screening decisions. Briefly, Dobrow et al.⁴ conclude that Wilson and Jungner's principles retain amazing viability, but through an updated analytic process including a modified Delphi consensus process they created a group of 12 consolidated screening principles categorized as the following: (1) disease/condition, (2) test/intervention, and (3) program/system. The expanded version considers more in the direction of operational and implementation issues such as resource or system capacity, coordination of programmatic components, and their integration into the broader health care system. The implication is that the updated principles represent a more comprehensive approach for contemporary perspectives on screening and could lead to a shift in the types of evidence used to inform screening decisions, especially for addressing program and system issues.

In clinical practice, the special nature of the patient/provider relationship has resulted in the need to create a core of ethical principles to govern this relationship. Screening is a preliminary process offered to a largely healthy population not seeking attention for symptoms of the disease for which the screening is being conducted and is meant to benefit the individuals being screened.

An important distinction between screening and episodic care for medical diagnosis and treatment is that the screening encounter is not initiated by the subject but by the provider or the health system. This is true whether screening is offered in an organized program or opportunistically in a variety of ambulatory care settings. Those who participate in screening are not patients in the sense that they are ill and, in most situations, do not become "traditional" patients. The screener promotes the test based on evidence that screening will improve the overall health of the community. This does not mean that the condition of every screened individual will be better, but in general, this should be so.⁵ Nevertheless, providers and community health systems are responsible for minimizing the potential harms and anxiety that affect certain individuals being screened, ensuring that quality control of the screening tests is maintained, and assuring that a useful course of management is available for all individuals identified as being truly test positive.

Equity of access to screening services is another important consideration. All who stand to gain from screening would ideally have access to the procedure. Those who organize the service have an obligation to ensure that those who have not heard of the test/procedure but who stand to benefit from it are adequately informed and are encouraged or invited to be screened.

One additional issue concerns the extent to which the offer of screening in a community could divert resources from other important health care programs. This is of great importance in low-resource settings in which available resources could be equitably distributed across the total community to obtain maximal benefit and the link between screening and management becomes even more important. When considering equitable distribution of resources, considerable thought of methods of primary prevention is important. With the HPV vaccine known to be an effective primary preventer of HPV-

associated neoplasia, programs to educate about the value of the vaccines, decrease hesitancy to vaccinate, and possibly improve delivery of the vaccines by manufacturing them locally could be highly considered. For countries without screening and treatment, HPV vaccination offers the best and possibly only opportunity for protection against HPV-associated neoplasia, and the World Health Organization recommends universal HPV vaccine introduction for girls aged 9 to 14 years.⁶

The purpose of this issue of the journal is to highlight reports of interventions to improve the health of populations in regions around the globe with limited access and resources to sustain health benefit to those individuals at risk of HPV-associated neoplasia.

Notwithstanding issues related to political will, personal safety, reproductive rights, and conflicting priorities for limited financial resources, these reports explore opportunities and share outcomes focused on reducing the burden of HPV-associated diseases. Although the model of cytology-based screening is shown to be effective where resources are available, it becomes in-effective when met by challenges of limited access, difficulties in sample processing, and complexities of follow-up. Therefore, other means of vaccine delivery, screening, and management better suited to sometimes hostile environments are critical for advancing the health of populations in need. Clearly, applying sustainable funding sources, vaccine delivery systems, newer screening, management, and prevention technologies in a culturally sensitive fashion is important for those communities where access and resources are highly limited.

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